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STRATEGY RESEARCH PROJECT

STEWARDSHIP – REWARDED OR PUNISHED?

BY

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United States Army

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USAWC STRATEGY RESEARCH PROJECT

Stewardship - Rewarded or Punished?

by

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ABSTRACT

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In 1998 the Army Chief of Staff proposed the following question to the Army War College Class of 1999 for research, "Do the Army resource mechanisms truly reward stewardship?" Exactly what is meant by proper stewardship and how well do the Army's management systems support it? This paper answers these questions by examining two of the major resourcing models used by the Department of the Army (DA), the Army Installation Management - Headquarters Information (AIM-HI) Model for base operations and family programs, and the Training Resource Model (TRM) for operations tempo (OPTEMPO), to determine how well they reward or punish good stewardship. Given today's political and fiscal realities, good stewardship and good management often work at cross-purposes at different levels of defense. This can lead to resource management models that are counterproductive to proper stewardship and readiness.

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STEWARDSHIP - REWARDED OR PUNISHED?

Whoever can be trusted with very little can also be trusted with much, and whoever is dishonest with very little will also be dishonest with much. And if you have not been trustworthy with someone else's property, who will give you property of your own?

- Luke 16: 10, 12

The word "stewardship" is seldom used today, replaced by the more modern term "management." However, stewardship, or the utilization and administration of another's property, finances, or other assets, properly describes the role of an Army resource manager. As good stewards resource managers provide accountability to higher management and owners (taxpayers) by documenting how effectively the owners' assets were managed in terms of both mission accomplishment and efficient operations. Good stewardship should extend into the mechanisms used by the Army to program and distribute resources, but this may not be the case. In identifying "Twelve Great Issues or Questions" for the Army War College Class of 1999 to research and discuss, the Chief of Staff of the Army (CSA) asked, "Do our resourcing mechanisms truly reward stewardship?" Clearly the CSA doubts it does or he would not have posed the question.

The initial reaction to this question by Army War College students and Army staff members surveyed during this study

supports the CSA's conclusions and reveals a limited knowledge of the true scope of resource management. Their responses focused on personal experience and the limited stewardship of saving money, not the proper utilization and management of financial resources. More detailed interviews with resource managers at Army staff, Major Command (MACOM) and installation level indicate many factors contribute to the view that the Army does not reward good stewardship. The two primary reasons cited were the "spend it or lose it next year" attitude and the use of historical cost factor models.

This paper examines two of the major resourcing mechanisms or models used by the Department of the Army (DA) to determine how they reward or punish good stewardship at various levels of management. In the process, the study offers insight into the culture of the Army's resource management system and the limitations it operates under.

BACKGROUND

Two major resourcing mechanisms are the Army Installation

Management - Headquarters Information (AIM-HI) Model for base

operations and family programs and the Training Resource Model

(TRM) for operations tempo (OPTEMPO). Together these models

account for approximately 37 percent of the Operations and Maintenance, Army (OMA) appropriation in fiscal year (FY) 1999 or \$6.3 billion dollars.

AIM-HI Model

AIM-HI is the model used to calculate requirements for base operations (BASOPS) and real property maintenance (RPM) for Army installations. Its development began shortly after the BASOPS Program Evaluation Group (PEG) was created in 1989, just prior to the building of the FY 1992-1997 Program Objective Memorandum (POM). To prepare for their first POM build, the BASOPS PEG created, in a commercial spreadsheet application, a one-page view of each of their management decision packages (MDEPs). This view provided both a visual and descriptive analysis of the MDEP program status and evolved into an automated application, MDEP Profiles, adopted by the Director of Program Analysis and Evaluation (DPAE) for use by all PEGs. The service of the program and the program of the program analysis and Evaluation (DPAE) for use by all PEGs.

In the course of the POM build and increased resource constraints, Army leaders requested significantly more information and analyses on Army installations and BASOPS resourcing levels. As a result, the BASOPS PEG staff conceived of and received funding to develop a system called AIM-HI. AIM-

HI's original purpose was to consolidate the information available on Army installations and programs and provide this to HQDA staff and leadership in an Executive Information System (EIS). Based on the experiences gained from the FY1994-99 POM build, the BASOPS PEG staff initiated an effort in 1992 to build into AIM-HI the capability to perform the requirements determination and programming assessments performed by their installation program development spreadsheet. It was used for the first time to develop the FY1996-01 POM.

Currently, MACOM program requirements for BASOPS and Family Programs are computed together, using population served as the cost driver. It is a simple three-step process. First, calculate the average of the last three years actual obligations adjusted for inflation and the average population served over the same three years. The obligation figures come from the accounting reports provided by the Defense Finance and Accounting Service (DFAS). The population figures are taken from the Army Stationing and Installation Plan (ASIP). Dividing the average obligations by the average population results in the average cost per capita based on a three year running average. 6

Next, determine the total authorized population to be served in each program year. These figures for each MACOM come

from the ASIP. Finally, multiply the average cost per capita by the population to be served and the composite inflation factor. The resulting number is the total BASOPS and Family Programs program requirement for each MACOM. It is important to note that DA only programs and budgets down to MACOM level, not installation. MACOMs decide the distribution to each installation.

Real Property Maintenance (RPM) requirements are driven by the quantity of facilities to be maintained. The current AIM-HI model uses the lesser of the required facility totals derived from the Headquarters, Real Property Planning and Analysis System (HQRPLANS) or the facilities inventory for a MACOM to drive the facility maintenance requirement. The Army Chief of Engineers office maintains the HQRPLANS database by installation and MACOM. It generates requirements based on how many square feet a facility or function is authorized such as floor space in a battalion headquarters or the length and width of an airport runway. The BASOPS PEG uses the lessor of the requirement in HQRPLANS or the actual inventory because it will not fund the repair and maintenance of facilities that are not required. 8

Computing the RPM requirement is a five-step process that uses U.S. Army Cost and Economic Analysis Center (USACEAC) developed historical cost factors derived from actual

obligations to calculate the cost per unit of measure. Four units of measure are used: square feet (buildings and structures), square yards (pavements), linear feet (railroads and bridges), and acres (training areas and ranges).

Multiplying the cost per unit of measure by the facilities inventory and the composite inflation factor results in the total RPM program requirement. For OCONUS MACOMs, multiply the total RPM requirement by the OCONUS conversion factor provided by USACEAC to account for foreign currency differences.

AIM-HI has proven to accurately estimate BASOPS and RPM requirements, but recent funding levels only provided for 84-87% of requirements. 10 This underfunding leads many commanders to speculate that the AIM-HI model is not accurate and is penalizing them for reducing costs. To counter this criticism and help improve the model, OACSIM made available to each MACOM a version of AIM-HI containing just that MACOM's data for their use. The AIM-HI model is certainly not perfect and its limitations will be explored later.

Training Resource Model

Operations Tempo (OPTEMPO) is the name given to the process the Army uses to calculate training resource requirements within

the combat force. HQDA uses a computerized, event-based execution model that generates dollar requirements needed to train the force to a particular readiness level. OPTEMPO models resources of ground and air training requirements.

Ground Requirements

The active Army trains against an "800 mile standard."

Eight hundred miles is a shorthand term that represents the annual tank mileage required for a unit to achieve the required C1 (fully trained) training readiness level. Although the "800 mile" term is frequently used as the Army's cost driver, there is a mileage standard for almost every piece of equipment in the Army's inventory. The Army chose tank miles to simplify its requests for resources similar to the Navy's "Steaming Days" and the Air Force's "Flying Hours." Total value of Active Component Ground OPTEMPO requirement is approximately \$2.4 billion annually. 11

Ground OPTEMPO costs are broken down into two categories with a nearly equal ratio of costs. Direct OPTEMPO are those costs that vary directly with equipment use or those costs that are allocated on the basis of equipment use. Primarily, direct OPTEMPO costs are repair parts, petroleum, and Depot Level Repairables (DLR). Indirect OPTEMPO are as those costs which

are not allocated on the basis of usage, but have some other dominant work load measure, such as force structure. An example is NBC supplies and equipment that are costed on the basis of the supported military populations.

Air Training Requirements.

The Army's Flying Hour Program (FHP) is driven by the Aircrew Training Manual (ATM), individual unit Mission Essential Task Lists and Army regulatory requirements. The funding strategy maintains Attack helicopters (Apache and Kiowa Warrior) at a minimum of 14.5 hours per aircraft crew per month while accepting risk in other aircraft systems to maintain a fleet average of 14.0 hours. Direct and indirect requirements are calculated much the same as Ground OPTEMPO requirements. Total value of the FHP requirement is approximately \$1 billion annually. 12

Resourcing Training Requirements.

The Army's OPTEMPO requirement is computed using the Training Resource Model (TRM). The TRM is a computerized model that costs out the training requirement for tactical Army units and provides a consistent means of defining and defending Army OPTEMPO in the budget process. Major input to the TRM is from a

series of Battalion Level Training Models (BLTM) that depict the OPTEMPO requirement at different readiness levels.

The BLTM's are computerized event oriented execution models. They are based on the TRADOC approved Combined Arms Training Strategy (CATS) for each type of tactical unit. The BLTM's allow HQDA to calculate the total OPTEMPO requirement for the entire force structure. There are approximately 1600 different BLTM's that are used to describe the force. 13

MACOM specific cost factors are an essential element of the requirements calculation in TRM. The Army's Cost and Economic Analysis Center (CEAC) generates these cost factors. Cost factors are generated using a 3 year running average of parts usage, the current Army Master Data File (AMDF) repair parts prices, supply surcharges, and supply credit policy. Cost factors are updated 3 times annually. From all this input the TRM generates direct and indirect OPTEMPO requirements. 14

Ground and air OPTEMPO modeling has been compared and evaluated with the monthly Unit Status Report (USR) since FY85 but there is not a good correlation between miles driven and readiness levels. The TRM has evolved since 1989 to better capture the overall cost to maintain readiness by adding

National Training Center (NTC) costs, force modernization costs, and Contractor Logistical Support (CLS) for Training Aids, Devices, Simulators, and Simulations (TADSS). These improvements allow the TRM to provide accurate costing data that enables HQDA to allocate about the right amount of dollars to maintain appropriate readiness levels.

The OPTEMPO methodology was designed as a HQDA resourcing tool and not as a prescriptive unit training strategy or a barometer of readiness. Active component and Reserve component forces are both calculated using TRM. The intent is to provide a system that supports financial planning requirements at the Major Commands while being a credible means of defining the Army's training resource requirements to other government agencies. Unfortunately, the Army's leadership has linked eight hundred miles of OPTEMPO to readiness in congressional testimony and budget justifications. This is dangerous, as the number of miles driven is only one of many factors that determine a unit's readiness. Using the model inappropriately is poor stewardship and exposes the Army to questions from OSD and Congress concerning why units are still C1 when they only drove 600 miles versus the 800 funded.

ANALYSIS OF MODELS

Both the AIM-HI and TRM models are vast improvements over previous methods to estimate and defend Army requirements for base operations and training requirements. The inputs to both have improved and better analytical tools produce the most accurate costing models possible given the limitations of the Army's current accounting and logistical systems.

These models are examples of good stewardship in that the Army leadership at all levels can reasonably estimate how much a given level of training or base operations support will cost based on historical fact rather than subjective estimates. This produces better management decisions concerning the utilization of the limited resources available to the Army.

The current models also provide incentives for savings and efficiencies, or good stewardship, in that a MACOM or installation keeps any savings for two or more years until it is reflected in historical cost factors. This is not readily apparent to most budget personnel and commanders but the time period difference between the accounting record data, the POM

preparation date, and the time period covered by the POM allow commands to fully use their savings the year implemented and the next.

As an example, the FY 00-05 POM built in 1998 used cost data from FY 95-97. The FY00 budget derived from this POM would not reflect any savings generated in FY98 or FY99. In fact, since both AIM-HI and TRM use a 3-year running average, any savings would be incrementally included in the cost factors with only the first year reflected in the average the third year after the savings started. Therefore, a MACOM would keep all of its savings for two years followed by two-thirds the third year and one-third the fourth year. This fact is easily lost in all the decrements a MACOM receives from DA in its funding levels and leads many MACOMs to claim that DA reduces their funding to reflect any savings or efficiencies they generate.

Yet, no model can be perfect and both the AIM-HI and TRM models suffer from the limitations inherent in historical cost factors that are the key inputs to both. The first limitation is although a historical cost factor tells how much something cost to do last year or an average of the last three years as is the case with AIM-HI and TRM, how can you determine if that was too much or too little? To what standard was the task or function performed? Was the equipment or building new or old?

Many factors impact on how good a predictor of future requirements a historical cost model can be.

A second limitation to historical cost factors is their lack of an incentive to reduce costs. Why save money if it reduces future funding? In both models reducing the cost to perform a function, such as driving a tank one mile, drives down the cost factor in the model. Funding levels in future years will be based on the lower factor and less funds received to perform the same requirement. Instead of rewarding good stewardship this phenomenon punishes it by eliminating the desire to perform the requirement to standard at the least possible cost. An example is only changing the oil in a vehicle when a chemical analysis tells you the oil has deteriorated to a certain level rather than at a set number of miles per the owner's manual. Fewer oil changes save money and reduce the cost per mile to operate the vehicle but it also reduces future funding levels.

Using historical costs can also lead to a funding "death spiral" as a MACOM receives fewer funds for a requirement. As a good steward the MACOM reduces the cost to perform the function to stay within budget through efficiencies or reducing the standard. The next year the MACOM receives even fewer funds for

the same mile or hour requirement as the historical cost factor is driven lower each year. This can continue for years even though the requirement may not change as future funding decreases.

This "death spiral" has a much greater impact on BASOPS and RPM than on OPTEMPO because of the cost drivers used. AIM-HI uses cost per population served while the TRM model for OPTEMPO uses cost per mile. If DA reduces funding levels with no reduction in population served, the cost per person in AIM-HI also goes down. Drastic measures taken at some Army installations to save money, such as only repairing one toilet in a building if it had two broken, lead to less money in the future. The lower cost factor generates lower requirements in future years, perpetuating the death spiral. For OPTEMPO, if DA reduces funding levels, units can drive fewer miles and the cost per mile remains nearly constant as fuel and repair parts consumption remain basically linear.

Another limitation to historical cost models is they are only as good as what is correctly reported in the official accounting and logistical records. The operators of these systems, down to the clerk ordering spare parts, must accurately record the correct charge against the proper unit and piece of

equipment or costs can be under or overstated. Systems can be bypassed as USAREUR did after Desert Storm and during the drawdown in Europe, but with severe ramifications. As a good steward, USAEUR wanted to use the excess inventory of spare parts left from Desert Storm and the deactivation of VII Corps rather than order new ones. This was an excellent idea since the parts had already been paid for and units could receive many as free issues.

It sounded like a win-win situation for all concerned.

However, since no demands were placed on the logistical system, it appeared from the official records that units were training at a much lower costs per mile. USAREUR'S M1A1 tank cost factor dropped from \$187 per mile in FY93 to only \$98 in FY97. This downward trend was even more surprising considering the number of miles driven averaged less than 500 due to deployments to Bosnia. The lower cost factor produced lower OPTEMPO requirements and funding each year, although by FY98 expenditures for repair parts had increased dramatically as the excess inventory was exhausted. This forced USAREUR to request more training funds. The increased expenditures brought the cost factor back into the normal range of \$193 per mile for FY99.

Fort Campbell provides an interesting case study on the impact of good stewardship on historical cost factors and future funding. Fort Campbell is home for the 101st Airborne Division (Air Assault) and the 160th Special Operations Aviation Regiment, both of which are aviation intensive units. In fact, there are more helicopters at Fort Campbell than anywhere in the world.

During the early 90s Fort Campbell realized that the primary driver of its funding was flying hours and the only way to "free up" funding for other purposes was to reduce flying hour costs. It formed an informal team of aviators, logisticians, and resource managers to study how to reduce costs. This effort received a substantial boost in FY 92 when HQDA shifted the funding for DLRs to the units and provided the initial funding. Although this policy change represented a net saving to the Army, Fort Campbell saw it as another bureaucratic change with insufficient resources. The biggest impact was that helicopter engines that were previously repaired for free at the Army Depot in Corpus Christi, Texas would now be charged to the unit's budget plus the transportation costs to and from the

depot. The team immediately looked for a cheaper way to repair the engines.

The result was a contract with DynCorps to perform depot level repairs for most helicopter engines at Fort Campbell. The price per engine was substantially lower than Corpus Christi's and the repairs were done at Fort Campbell. This virtually eliminated transportation costs and improved turnaround time. Savings after the first year start-up costs averaged \$10-13 million per year based on the difference between funding provided for DLRs in the FHP in OPTEMPO and the contract price.²⁰

This is clearly a case where good stewardship at the installation level was rewarded as Fort Campbell used the savings in flying hours to fund many critical unfinanced requirements for both the tactical units and the installation. Given this success, the team shifted to ways to reduce costs in non-DLRs. Although less dramatic than DLRs, the team produced over \$4 million in annual savings by FY 97 by reducing repair parts inventories, eliminating duplicate charges in accounting records, and reducing order-to-receipt times for repair parts.²¹

These dramatic savings did not go unnoticed by both Fort Campbell's higher headquarters, Forces Command (FORSCOM) and

HQDA. FORSCOM strongly supported the 101st and Fort Campbell but the FHP managers in DA DCSOPS did not endorse the migration of OPTEMPO dollars to lower Army priorities. DA's position was that if the 101st could fly the required hours to remain ready for less money than DA provided, then DA should move that flying hour money to the highest Army priorities. This demonstrates a conflict in the Army's resource management system between providing installations with incentives to save money while insuring all Army resources are used for its highest priorities. A dichotomy exists, as it is impossible to do both all the time.

A second order problem was the depot at Corpus Christi.

Since it was not getting the helicopter engines to repair from

Fort Campbell, it had excess capacity. To cover its overhead,

the rates went up and it laid off workers to reduce capacity.

This increased costs to the rest of the Army and angered the

local workforce and its congressman. The congressman requested

a study of Fort Campbell's practices resulting in the Army's

agreement to send at least 20 percent of all helicopter engines

DLRs to Corpus Christi.²² The Army is meeting this requirement

but this illustrates the point that what is good for an

installation or MACOM is not necessarily what is best for the

Army. It also drives home the fact that sometimes the political

realities of constituent jobs are more important than saving the Army money.

The problems identified earlier with historical cost factor models finally caught up with Fort Campbell. The savings drove down the cost factors for DLRs and repair parts used in the TRM. TRM then reduced the cost per flying hour used to program flying hour requirements in the POM. Therefore, from Fort Campbell's perspective, it was punished for its good stewardship by receiving less flying hour dollars in future budgets. However, from HQDA's perspective, why should a unit receive more money than it needs to perform a training requirement? Plus, lower costs for flying hours frees up funds to finance other higher priority requirements at DA level.

FUTURE IMPROVEMENTS

The AIM-HI model is still under improvement despite changes in organizations. In early 1996 the Army restructured the PEG system and reduced the number of PEGs from 14 to six. The Installation PEG was created by merging the Military Construction and BASOPS PEGs and adding to that the base communications, information, and base automation programs for

installations which had been the responsibility of the Information Management PEG.²³

The Installation PEG staff continued to work on refining and improving the AIM-HI model. They identified the following shortcomings in the current version (5.3) of the AIM-HI model:

- 1. Requirements are based on the amount spent in past years, not what it costs to perform a function or service.
- 2. Using historical cost factors produces a "death spiral" in future funding due to under-execution of the full requirement each year.
- 3. Dependence on historical cost data produces a two-year time lag between the last data point and the current POM $(FY\ 95-97\ data\ used\ for\ FY\ 00-05\ POM\ build).^{24}$

To correct these shortcomings, the Installation PEG staff sought to break the link between historical execution and requirements. BASOPS and RPM program requirements should be based on what the services should cost, rather than strictly on what they did cost. Historical costs play a roll in developing the "should" or "expected" cost, but do not stand alone. Historical quantities and, most importantly, historical qualities are key to developing the cost factors (or functions) for the expected cost of services. 25

Version 6.0 of AIM-HI begins to break the link to historical costs by using the average requirement from the last three POMs as the basis for the current POM build rather than what was actually spent. The previous POM requirements are scrubbed and revised to account for any one-time adjustments and compared to actual execution data to ensure they are not overstated. For the FY01-05 POM, the requirements from POM 98-03, 99-03, and 00-05 are adjusted for inflation and averaged. This average is divided by the average population served for 98-00 to determine the 01-05 cost per capita. Multiplying the cost per capita by the projected population served from the ASIP results in the requirement for the FY01-05 POM.²⁶

This change eliminates past execution as the driver for future requirements. The drivers become the true variables in a BASOPS or RPM function each year - population changes, efficiencies, and mission transfers. Using this methodology, gross requirements remain relatively stable even though funding levels may change from year to year, thus eliminating the "death spiral" in the current version of AIM-HI.

The Installation PEG staff is also working to include quality in its model since it plays a major roll in cost.

Quality measures, such as cycle time, accuracy, and availability

of the service, can drive the cost per unit output up or down. For example, a commander can speed up the cycle time to move soldiers through the meal line by adding cooks and servers to the dining facility serving line, at an additional cost. 27

Quality measures will be come from the Installation Status Report (ISR) Part III (Services) currently under development by the ACSIM and USACEAC. Their goal is to link cost and quality together so a decision-maker can make rational tradeoffs between the two variables based on careful analysis of the impacts.

CONCLUSIONS

The CSA is right - the Army's major resourcing mechanisms do not reward effective stewardship in most cases. The one exception cited in the research is that of allowing installations or MACOMs to keep savings for two or more years until reflected in historical cost factors. Even this exception is more a function of the delay in obtaining accounting information and the timing of the POM than the Army rewarding good stewardship.

While the AIM-HI and TRM models are vast improvements over previous methods to estimate and defend Army requirements for base operations and training requirements, their reliance on

historical cost factors restrict their ability to reward stewardship. Their basis in the past only provides what a function or service did cost, not what it should cost for a specific level of quality. This focus also decreases the incentive to reduce costs as lower historical costs lead to less funding for the same function or service in the future. The future improvements in AIM-HI demonstrate one method of breaking this link to historical cost factors.

Further, although only designed as a HQDA resourcing tool, OPTEMPO has become a de facto measure of training proficiency and a barometer of readiness for many units. Using the model inappropriately is poor stewardship and has opened up the Army to questions from OSD and Congress concerning readiness.

Unfortunately, the Army's leadership has tied the number of OPTEMPO miles funded to readiness in congressional testimony and budget justifications. Now Congress wants to know how units can remain ready (C1) when they drive less than the prescribed eight hundred miles.

Finally, stewardship in the Army is also hindered at times by political realities. Even though an installation or MACOM may develop a method to reduce costs, such as Fort Campbell did with helicopter engine repairs, the reality is that the depot

with this mission must repair enough engines to keep its employee level stable, even if it costs more. This is part of our system of government that in many ways does not have to be efficient to be a good steward but accomplish the "greater" mission of providing for its citizens.

Word Count: 4623

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